

CLAIMS

1. A liquid ejection apparatus comprising a cartridge holder,
and a liquid cartridge detachably mounted on the cartridge
5 holder and storing liquid, and ejecting the liquid in the
liquid cartridge attached to the cartridge holder toward a
target, characterized in that

the liquid ejection apparatus further comprises a slide
member and a rotating member,

10 said slide member is slidably supported at said cartridge
holder, the slide member slides along an insertion direction
of the liquid cartridge between a first position and a second
position, and the insertion direction is a direction in which
the liquid cartridge is inserted into the cartridge holder
15 when the liquid cartridge is attached to the cartridge holder,
and

said rotating member is rotatably supported at said
cartridge holder, rotation of the rotating member is linked to
sliding of said slide member, and when the slide member moves
20 to the second position from the first position, the rotating
member displaces so as not to allow removal of the liquid
cartridge from the cartridge holder, and when the slide member
moves to the first position from the second position, the
rotating member displaces to allow removal of the liquid
25 cartridge from the cartridge holder.

2. A liquid ejection apparatus comprising a liquid ejection
head for ejecting liquid toward a target, a liquid cartridge
for storing said liquid, a liquid passage for connecting said
30 liquid ejection head and said liquid cartridge, and a
cartridge holder for housing said liquid cartridge,
characterized in that

said cartridge holder includes

a slide member slidable along an insertion direction of
35 said liquid cartridge between a first slide position and a

second slide position, with the insertion direction being a direction in which the liquid cartridge is inserted into the cartridge holder when the liquid cartridge is attached to the cartridge holder;

5 a lock claw member supported at said slide member rotatably between a first rotation position and a second rotation position; and

a rib abutting said lock claw member,

10 said rib causing said lock claw member to be located at the first rotation position when said slide member is located at said first position, and causing said lock claw member to be located at the second rotation position when said slide member is located at said second position, and

15 said liquid cartridge including an engaging portion switching between a state in which the engaging portion is engaged with said lock claw member and a state in which the engaging portion is not engaged with said lock claw member, wherein said engaging portion is not engaged with said lock claw member when said lock claw member is located at said
20 first rotation position, and is engaged with said lock claw member when said lock claw member is located at said second rotation position.

3. The liquid ejection apparatus according to claim 2,
25 characterized in that

said cartridge holder includes

biasing means which biases said slide member to displace to said first slide position, and

fixing means which fixes said slide member to said second
30 slide position.

4. The liquid ejection apparatus according to claim 3, characterized in that

said fixing means includes

35 a latch groove provided in said slide member, and

a latch claw member including a claw member engaging in said latch groove, and

said latch groove includes

a first groove portion in which said claw member engages
5 when said slide member is located at said first position,

a second groove portion in which said claw member engages
when said slide member is located at said second position,
with movement of said slide member to said first position
being restrained when said claw member engages in the second
10 groove portion,

a third groove portion which guides said claw member from
said first groove portion to said second groove portion when
said slide member moves from said first position to said
second position, and

15 a fourth groove portion which guides said claw member
from said second groove portion to said first groove portion
when said slide member moves from said second position to said
first position.

20 5. The liquid ejection apparatus according to claim 4,
characterized in that said fourth groove portion is formed to
guide said claw member from said second groove portion to said
first groove portion when said slide member slides in an
insertion direction of said liquid cartridge from said second
25 position.

6. The liquid ejection apparatus according to any one of
claims 2 to 5, characterized in that said engaging portion is
a recessed portion.

30 7. The liquid ejection apparatus according to any one of
claims 2 to 6, characterized in that

said liquid passage includes a liquid supply needle
connected to said liquid cartridge,

35 said liquid supply needle is movably inserted through

said slide member, and said slide member includes absorbing means integrated with the slide member to surround said liquid supply needle and absorbs liquid leakage.

5 8. The liquid ejection apparatus according to any one of claims 2 to 7, characterized in that

said liquid cartridge includes a liquid housing part for storing said liquid, a liquid case for housing said liquid housing part, and a communication hole for introducing air
10 into a gap between said liquid housing part and said liquid case,

said cartridge holder includes an air lead-in tube connected to said communication hole of the liquid cartridge housed in the cartridge holder, and

15 said slide member includes bending restraining means integrated with the slide member and restrains bending of said air introducing tube.

9. A liquid ejection apparatus comprising a liquid ejection
20 head for ejecting liquid toward a target, a liquid cartridge for storing said liquid, a liquid passage for connecting said liquid ejection head and said liquid cartridge, and a cartridge holder for housing said liquid cartridge, characterized in that

25 the liquid ejection apparatus further comprises a slide member and a rotating member,

said slide member is slidably supported at said cartridge holder, the slide member is slidable along an insertion direction of said liquid cartridge between a first position
30 and a second position, and the insertion direction is a direction in which the liquid cartridge is inserted into the cartridge holder when the liquid cartridge is attached to the cartridge holder, and

said rotating member is rotatably supported at said
35 cartridge holder, rotation of the rotating member is linked to

sliding of said slide member, and when said slide member moves to the second position from the first position, the rotating member displaces so as to connect said liquid cartridge to said slide member, and when said slide member moves to the first position from the second position, the rotating member displaces to release connection of said liquid cartridge to said slide member.

10. The liquid ejection apparatus according to claim 9, characterized in that

the liquid ejection apparatus further comprises biasing means for biasing said slide member to said first position from said second position, in which movement of the slide member from the first position to the second position is performed against the biasing force of said biasing means, and

said rotating member includes an engaging member which switches between a state in which the engaging member engages with said liquid cartridge and a state in which the engaging member does not engage with said liquid cartridge in accordance with rotation of the rotating member.

11. The liquid ejection apparatus according to claim 10, characterized in that

said slide member includes a guide groove,

said rotating member includes a claw member movable inside the guide groove along said guide groove, in which rotation of the rotating member is linked to movement of the claw member, and

said guide groove includes

a first groove portion in which said claw member engages when said slide member is located at said first position,

a second groove portion in which said claw member engages when said slide member is located at said second position, with movement of said slide member to said first position

being restrained when said claw member engages in the second

groove portion,

a third groove portion which guides said claw member from said first groove portion to said second groove portion when said slide member moves from said first position to said

5 second position, and

a fourth groove portion which guides said claw member from said second groove portion to said first groove portion when said slide member moves from said second position to said first position.

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12. The liquid ejection apparatus according to claim 11, characterized in that said fourth groove portion is formed to guide said claw member from said second groove portion to said first groove portion when said slide member slides in an insertion direction of said liquid cartridge from said second position.

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13. The liquid ejection apparatus according to any one of claims 10 to 12, characterized in that the engaging member, which is included by said rotating member, engages in a groove open at one side of an upper surface of said liquid cartridge, and connects said liquid cartridge and said slide member.

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14. The liquid ejection apparatus according to any one of claims 9 to 13, characterized in that said biasing means is first biasing means, the liquid ejection apparatus further comprises second biasing means for biasing said rotating member in one direction, and said rotating member rotates against biasing force of said second biasing means during movement of the slide member from the first position to the second position, and rotates while being biased by said second biasing means during movement of the slide member to the first position from the second position.

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35 15. The liquid ejection apparatus according to any one of

claims 9 to 14, characterized in that

said liquid passage includes a liquid supply needle
connected to said liquid cartridge, and

said liquid supply needle is movably penetrated through
5 said slide member, and said slide member includes liquid
absorbing means integrated with the slide member to surround
said liquid supply needle and absorbs liquid leakage.

16. The liquid ejection apparatus according to any one of
10 claims 9 to 15, characterized in that

said liquid cartridge includes a communication hole, said
cartridge holder includes an air lead-in tube connected to
said communication hole of the liquid cartridge housed in the
cartridge holder, and

15 said slide member includes bending restraining means
integrated with the slide member and restrains bending of the
air lead-in tube.

17. A liquid ejection apparatus comprising a liquid ejection
20 head for ejecting liquid toward a target, a liquid cartridge
for storing said liquid, a liquid passage for connecting said
liquid ejection head and said liquid cartridge, and a
cartridge holder for housing said liquid cartridge,
characterized in that

25 the liquid ejection apparatus further comprises a slide
member slidably supported at said cartridge holder, and the
slide member slides along an insertion direction of said
liquid cartridge between a first slide position and a second
slide position following attachment and detachment of the
30 liquid cartridge to and from the cartridge holder, and the
insertion direction is a direction in which the liquid
cartridge is inserted into the cartridge holder when the
liquid cartridge is attached to the cartridge holder,

said liquid passage including a liquid supply needle that
35 forms a connection portion to said liquid cartridge,

said cartridge holder including an air lead-in tube connected to said liquid cartridge, and

said slide member including a portion which guides said liquid supply needle and a part which guides a part of said air lead-in tube connected to the liquid cartridge.

18. The liquid ejection apparatus according to claim 17, characterized by further comprising biasing means for biasing said slide member in an opposite direction from said insertion direction.

19. The liquid ejection apparatus according to claim 17 or 18, characterized in that the liquid ejection apparatus further comprises a rotating member rotatably supported at said cartridge holder, in which rotation of the rotating member is linked to sliding of said slide member, the rotating member displaces to a position that does not allow removal of the liquid cartridge from the cartridge holder when the slide member moves from the first slide position to the second slide position, and the rotating member displaces to a position that allows removal of the liquid cartridge from the cartridge holder when the slide member moves from the second slide position to the first slide position.

20. The liquid ejection apparatus according to claim 17 or 18, characterized in that

said cartridge holder includes

a lock claw member supported at said slide member rotatably between the first rotation position and the second rotation position, and

a rib which abuts said lock claw member,

said rib causing said lock claw member to be located at the first rotation position when said slide member is located at said first position, and causing said lock claw member to be located at the second rotation position when said slide

member is located at said second position, and

said liquid cartridge includes an engaging portion which is switched between a state in which the engaging portion

engages with said lock claw member and a state in which the

5 engaging portion does not engage with said lock claw member,

said engaging portion does not engage with said lock claw

member when said lock claw member is located at said first

rotation position, and said engaging portion engages with said

lock claw member when said lock claw member is located at said

10 second rotation position.

21. The liquid ejection apparatus according to claim 17 or 18,

characterized in that the liquid ejection apparatus further

comprises a rotating member rotatably supported at said

15 cartridge holder, rotation of the rotating member is linked to

sliding of said slide member, the rotating member displaces so

as to connect said liquid cartridge to said slide member when

said slide member moves from the first position to the second

position, and the rotating member displaces to release

20 connection of said liquid cartridge to said slide member when

said slide member moves from the second position to the first

position.